CLAIMS

I claim:

1. A three-dimensional (3-D) interactive display comprising:

a display monitor screen;

an array of capaciflective pixels disposed upon said monitor screen;

a first group of sensor pads connected to ones of said array of capaciflective pixels;

a second group of sensor pads connected to ones of said array of capaciflective pixels, capaciflective pixels connected to said first group of sensor pads not being connected to said second group of sensor pads; and

an operational amplifier connected to each of said sensor pads, each said operational amplifier biasing and receiving a signal from a connected sensor pad responsive to intrusion of a probe, said signal being proportional to probe positional location with respect to said monitor screen.

2. A 3-D interactive display as in claim 1, further comprising:

a transparent shield layer disposed between said monitor screen and said array of capaciflective pixels.

3. A 3-D interactive display as in claim 2, wherein capaciflective pixels connected to said first group of sensor pads are arranged in columns and capaciflective pixels connected to said second group of sensor pads are arranged in rows.

4. A 3-D interactive display as in claim 3, wherein capaciflective pixels connected to each sensor pad of said first group and said second group comprises:

a plurality of parallel wires;

a turnaround at one end of said plurality of parallel wires; and

a sensor pad at an opposite end of said plurality of parallel wires.

5. A 3-D interactive display as in claim 4 wherein said plurality of parallel wires comprises five wires spaced a half a centimeter apart, each of said wires spanning said display screen.

6. A 3-D interactive display as in claim 4 wherein each of said parallel wires are silver.

7. A 3-D interactive display as in claim 3 further comprising a protective coating over said array.

8. A 3-D interactive display as in claim 2 wherein each of said capaciflective pixels is a transparent conductive plate.

9. A 3-D interactive display as in claim 8 wherein capaciflective pixels connected to each of said sensor pads in each of said first and second groups are arranged in alternating pixels and spaces such that when capaciflective pixels connected to sensor pads from said first group are overlaid by capaciflective pixels from said second group, said display screen is covered with a single layer of alternating pixels from either group.

10. A 3-D interactive display as in claim 9 wherein each of said capaciflective pixels is a square 25 μm thick layer of conductive glass.

11. A 3-D interactive display as in claim 10 wherein said transparent shield layer is a 25 μm thick layer of conductive glass, said shield layer and said capaciflective pixels being biased and driven identically.

12. A 3-D interactive display as in claim 2 wherein said transparent shield layer is a 25 μm thick layer of conductive glass.

13. A 3-D interactive display as in claim 12, said shield layer including a shield pad, said shield pad connected to another operational amplifier, said 3-D interactive display further comprising:

an oscillator driving operational amplifiers connected to each sensor pad and said shield pad, said shield being biased and driven identically to said capaciflective pixels.

14. A 3-D interactive display as in claim 13, said oscillator frequency being 100 KHz, said oscillator output voltage being 12 volts or less.

15. A 3-D interactive display system including a 3-D interactive display as in claim 14, said 3-D interactive display being connected to and interfacing with a computer.

16. A method of forming a transparent capaciflector camera, said method comprising the steps of:

a) forming a first wire layer on a first dielectric layer;

b) forming a second dielectric layer over said first wire layer;

c) forming a second wire layer over said second dielectric layer; and

d) forming a protective coating layer on said second wire layer.

17. A method as in claim 16 before the step (a) of forming the first wire layer further comprising:

a1) forming a shield layer on a non-conductive substrate, said shield being a transparent layer of conductive material; and

a2) forming said first dielectric layer on said shield layer.

18. A method as in claim 17 wherein the second wire layer is formed orthogonally to said first wire layer.

19. A method as in claim 18 wherein said first steps a) and c) of forming each of the first wire layer and second wire layer comprises:

i) forming a plurality of groups of parallel wires spanning said substrate;

ii) forming a turnaround at one end of said of each of said groups; and

iii) forming a pad at an opposite end of each said groups.

20. A method as in claim 19 wherein in step (i) each wire is formed by depositing silver paste and curing said deposited silver paste.

21. A method as in claim 17 wherein said shield layer is formed by depositing a 25 μm thick layer of conductive glass on a glass substrate.

22. A method as in claim 21 further comprising forming a shield pad on said conductive glass layer.

23. A method as in claim 22 further comprising forming vias to pads in each of said shield layer and said wire layers.

24. A method as in claim 22 further comprising:

forming a first pixel layer, said first pixel layer being formed on said first wire layer, said second dielectric layer being formed on said first pixel layer; and

forming a second pixel layer on said second dielectric layer, said second wire layer being formed on said second pixel layer.

25. A method as in claim 22 wherein said first pixel layer and said second pixel layer are each comprised of a plurality of pixel plates, said pixel plates each being a 25 μm thick conductive glass plate.

26. A transparent capaciflector (TC) camera comprising:

a transparent shield layer;

a first dielectric layer on said shield layer;

a first wire layer on said first dielectric layer, wires on said first wire layer disposed in a first direction;

a second dielectric layer on said first wire layer;

a second wire layer on said second dielectric layer, wires on said second wire layer disposed orthogonally to wires on said first wire layer; and

a surface dielectric layer on said second wire layer.

27. A TC camera as in claim 26, wherein said first wire layer and said second wire layer each comprises:

a plurality of groups of parallel wires;

a turnaround at one end of each said group of parallel wires; and

a sensor pad at an opposite end of each said group of parallel wires.

28. A TC camera as in claim 27 wherein each said group of parallel wires comprises five silver wires spaced a half a centimeter apart.

29. A TC camera as in claim 28 wherein said transparent shield layer is a 25 μm thick layer of conductive glass and includes a shield pad disposed at one side.

30. A TC camera as in claim 29, further comprising:

a via at each said sensor pad; and

a via at said shield pad, each said via filled with silver epoxy and extending upward from said sensor pad or said shield pad to an upper surface of said surface dielectric layer.

31. A transparent capaciflector (TC) camera comprising:

a transparent shield layer;

a first dielectric layer on said transparent shield layer;

a first wire layer on said first dielectric layer;

a first pixel layer, wires on said first wire layer contacting pixels on said first pixel layer;

a second dielectric layer on said first pixel layer;

a second pixel layer on said second dielectric layer;

a second wire layer on said second pixel layer, wires on said second wire layer contacting pixels on said second pixel layer; and

a surface dielectric layer on said second wire layer.

32. A TC camera as in claim 31, wherein each wire on said first wire layer and said second wire layer contacts a sensor pad.

33. A TC camera as in claim 32 wherein said transparent shield layer and each pixel is a 25 μm thick layer of conductive glass, said transparent shield layer including a shield pad disposed at one side.

34. A TC camera as in claim 29, further comprising:

a via at each said sensor pad; and

a via at said shield pad, each said via filled with silver epoxy and extending upward from said sensor pad or said shield pad to an upper surface of said surface dielectric layer.